

SEQUENCE LISTING

<110> Salbaum, Michael J.

<120> NOPE Polypeptides, Encoding Nucleic  
Acids and Methods of Use

<130> P-NI 4552

<150> US 60/174,496

<151> 2000-01-04

<150> US 60/205,789

<151> 2000-05-19

<160> 45

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Arg Val Thr Ala Thr Pro Leu Ser Ser Ser Val Leu Val Ala Trp			
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Asp Tyr Glu Phe Tyr Val Val Ala Tyr Ser Gln Leu Gly Ala Ser Arg			
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Tyr Lys Ile Glu Tyr Gly Leu Gly Lys Glu Asp Gln Val Phe Ser Thr  
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Glu Val Pro Gly Asn Glu Thr Gln Leu Thr Leu Asn Ser Leu Gln Pro  
580 585 590

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aaa cac gag gac ggc tac gct gct gtg tgg aag ggc aag acg gag aag 2208  
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725

730

735

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Phe Gly Ser Val Val Glu Arg Ser Thr Leu Pro Asp Arg Pro Ser Thr			
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Pro Pro Ser Asp Leu Arg Leu Ser Pro Leu Thr Pro Ser Thr Val Arg			
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Gln Ala Val Val Leu Asp Cys Thr Leu Gly Ala Thr Ala Ala Gly Pro  
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Pro Thr Arg Val Thr Trp Ser Lys Asp Gly Asp Thr Val Leu Glu His  
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Glu Asn Leu His Leu Leu Pro Asn Gly Ser Leu Trp Leu Ser Ser Pro  
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Ser Leu His Pro Glu Ser Gln Ile Val Glu Glu Asn Gly Thr Ala Arg  
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725 730 735  
Ala Pro Thr Pro Asp Leu Pro Ile Gln Arg Gly Pro Pro Leu Pro Pro  
740 745 750  
Ala His Val His Ala Glu Ser Asn Ser Ser Thr Ser Ile Trp Leu Arg  
755 760 765  
Trp Lys Lys Pro Asp Phe Thr Thr Val Lys Ile Val Asn Tyr Thr Val  
770 775 780  
Arg Phe Gly Pro Trp Gly Leu Arg Asn Ala Ser Leu Val Thr Tyr Tyr  
785 790 795 800  
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Lys Tyr Glu Phe Ala Val Gln Ser His Gly Val Asp Met Asp Gly Pro  
820 825 830  
Phe Gly Ser Val Val Glu Arg Ser Thr Leu Pro Asp Arg Pro Ser Thr  
835 840 845  
Pro Pro Ser Asp Leu Arg Leu Ser Pro Leu Thr Pro Ser Thr Val Arg  
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Leu His Trp Cys Pro Pro Thr Glu Pro Asn Gly Glu Ile Val Glu Tyr  
865 870 875 880  
Leu Ile Leu Tyr Ser Asn Asn His Thr Gln Pro Glu His Gln Trp Thr  
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900 905 910  
Glu Ser Asp Thr Arg Tyr Phe Phe Lys Met Gly Ala Arg Thr Glu Val  
915 920 925  
Gly Pro Gly Pro Phe Ser Arg Leu Gln Asp Val Ile Thr Leu Gln Glu  
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945 950 955 960  
Gly Val Cys Leu Gly Leu Leu Cys Leu Leu Ala Cys Met Cys Ala Gly  
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Leu Arg Gln Ser Ser His Arg Glu Ala Leu Pro Gly Leu Ser Ser Ser  
980 985 990  
Gly Thr Pro Gly Asn Pro Ala Leu Tyr Thr Arg Ala Arg Leu Gly Pro  
995 1000 1005  
Pro Ser Val Pro Ala Ala His Glu Leu Glu Ser Leu Val His Pro Arg  
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Pro Gln Asp Trp Ser Pro Pro Pro Ser Asp Val Glu Asp Lys Ala Glu  
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Val His Ser Leu Met Gly Gly Ser Val Ser Asp Cys Arg Gly His Ser  
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Lys Arg Lys Ile Ser Trp Ala Gln Ala Gly Gly Pro Asn Trp Ala Gly  
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Leu Thr Arg Ala Leu Leu Pro Pro Ala Gly Thr Gly Gln Thr Leu Leu

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Leu Gln Ala Leu Val Tyr Asp Gly Ile Lys Ser Asn Gly Arg Lys Lys		
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Pro Ser Pro Ala Cys Arg Asn Gln Val Glu Ala Glu Val Ile Val His		1120
1125	1130	1135
Ser Asp Phe Gly Ala Ser Lys Gly Cys Pro Asp Leu His Leu Gln Asp		
1140	1145	1150
Leu Glu Pro Glu Glu Pro Leu Thr Ala Glu Thr Leu Pro Ser Thr Ser		
1155	1160	1165
Gly Ala Val Asp Leu Ser Gln Gly Ala Asp Trp Leu Gly Arg Glu Leu		
1170	1175	1180
Gly Gly Cys Gln Pro Thr Thr Ser Gly Pro Glu Arg Leu Thr Cys Leu		
1185	1190	1195
Pro Glu Ala Ala Ser Ala Ser Cys Ser Cys Ser Asp Leu Gln Pro Ser		1200
1205	1210	1215
Thr Ala Ile Glu Glu Ala Pro Gly Lys Ser Cys Gln Pro Lys Ala Leu		
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Cys Pro Leu Thr Val Ser Pro Ser Leu Pro Arg Ala Pro Val Ser Ser		
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Ala Gln Val Pro		
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gag gga ccc ctg caa gtg atc ctg ggc cct gag cag gct gtg gtg ctg	96
Glu Gly Pro Leu Gln Val Ile Leu Gly Pro Glu Gln Ala Val Val Leu	
20 25 30	

gac tgc act ttg ggg gct aca gct gct ggg cct ccg acc agg gtg aca	144
Asp Cys Thr Leu Gly Ala Thr Ala Ala Gly Pro Pro Thr Arg Val Thr	
35 40 45	

tgg agc aag gat gga gac act gta cta gag cat gag aac ctg cac ctg	192
Trp Ser Lys Asp Gly Asp Thr Val Leu Glu His Glu Asn Leu His Leu	
50 55 60	

cta ccc aat ggc tcc ctg tgg ctg tcc tca ccc cta gag caa gaa gac	240
Leu Pro Asn Gly Ser Leu Trp Leu Ser Ser Pro Leu Glu Gln Glu Asp	
65 70 75 80	

agc gat gat gag gaa gct ctt agg atc tgg aag gtc act gag ggc agc	85	90	95	288
Ser Asp Asp Glu Glu Ala Leu Arg Ile Trp Lys Val Thr Glu Gly Ser				
tat tcc tgt ctg gcc cac agc ccg cta gga gtc gtg gcc agc cag gtt	100	105	110	336
Tyr Ser Cys Leu Ala His Ser Pro Leu Gly Val Val Ala Ser Gln Val				
gct gtg gtc aag ctt gcc aca ctc gaa gac ttc tct ctg cac ccc gag	115	120	125	384
Ala Val Val Lys Leu Ala Thr Leu Glu Asp Phe Ser Leu His Pro Glu				
tcc cag att gtg gag gag aac ggg aca gca cgc ttt gaa tgc cac acc	130	135	140	432
Ser Gln Ile Val Glu Glu Asn Gly Thr Ala Arg Phe Glu Cys His Thr				
aag ggc ctt cca gcc ccc atc att act tgg gaa aag gac cag gtg acc	145	150	155	480
Lys Gly Leu Pro Ala Pro Ile Ile Thr Trp Glu Lys Asp Gln Val Thr				
gtg cct gag gag ccc cgg ctc atc act ctt ccc aag tgg ctc ctc cag	165	170	175	528
Val Pro Glu Glu Pro Arg Leu Ile Thr Leu Pro Lys Trp Leu Leu Gln				
atc cta gat gtc cag gac agt gat gca ggc tcc tac cgc tgc gtg gcc	180	185	190	576
Ile Leu Asp Val Gln Asp Ser Asp Ala Gly Ser Tyr Arg Cys Val Ala				
acc aat tca gcc cgc caa cga ttc agc cag gag gcc tcg ctc act gtg	195	200	205	624
Thr Asn Ser Ala Arg Gln Arg Phe Ser Gln Glu Ala Ser Leu Thr Val				
gcc ctc aga ggg tct ttg gag gct acc agg ggg cag gat gtg gtc att	210	215	220	672
Ala Leu Arg Gly Ser Leu Glu Ala Thr Arg Gly Gln Asp Val Val Ile				
gtg gca gcc cca gag aac acc acg gta gtg tct gga cag aat gta gtg	225	230	235	720
Val Ala Ala Pro Glu Asn Thr Val Val Ser Gly Gln Asn Val Val				
atg gag tgc gtg gcc tct gct gac ccc acc cct ttt gtg tcc tgg gtc	245	250	255	768
Met Glu Cys Val Ala Ser Ala Asp Pro Thr Pro Phe Val Ser Trp Val				
cga cag gat gga aag cct atc tcc acg gat gtc atc gtt ctg ggc cgg	260	265	270	816
Arg Gln Asp Gly Lys Pro Ile Ser Thr Asp Val Ile Val Leu Gly Arg				
acc aat cta ctc atc gcc agc gcg cag cct cgg cac tct gga gtc tat	275	280	285	864
Thr Asn Leu Leu Ile Ala Ser Ala Gln Pro Arg His Ser Gly Val Tyr				
gtc tgc cga gcc aac aag ccc ctc acg cgt gac ttc gcc act gcg gct				912

Val Cys Arg Ala Asn Lys Pro Leu Thr Arg Asp Phe Ala Thr Ala Ala			
290	295	300	
gct gag ctc cga gtg ctt gct gcc cca gcc atc tcg cag gca ccc gag			960
Ala Glu Leu Arg Val Leu Ala Ala Pro Ala Ile Ser Gln Ala Pro Glu			
305	310	315	320
gcg ctc tcg cgg acg cgg gcc acc gcg cgc ttc gtg tgc cgg gcg			1008
Ala Leu Ser Arg Thr Arg Ala Ser Thr Ala Arg Phe Val Cys Arg Ala			
325	330	335	
tcc ggg gag cca cgg ccc gcg ctg cac tgg ctg cac gac ggg atc ccg			1056
Ser Gly Glu Pro Arg Pro Ala Leu His Trp Leu His Asp Gly Ile Pro			
340	345	350	
ttg cga ccc aat ggg cgc gtc aag gtg cag ggc ggt ggc ggc agc ttg			1104
Leu Arg Pro Asn Gly Arg Val Lys Val Gln Gly Gly Gly Ser Leu			
355	360	365	
gtc atc act cag atc ggc ctg cag gac gct ggc tac tac cag tgc gta			1152
Val Ile Thr Gln Ile Gly Leu Gln Asp Ala Gly Tyr Tyr Gln Cys Val			
370	375	380	
gca gaa aac agc gcg gga act gcc tgt gcc gct gcg ccc ctg gcg gta			1200
Ala Glu Asn Ser Ala Gly Thr Ala Cys Ala Ala Pro Leu Ala Val			
385	390	395	400
gtg gtg cgc gag ggg ctg ccc agc gcc ccg act cgg gtc aca gcc acg			1248
Val Val Arg Glu Gly Leu Pro Ser Ala Pro Thr Arg Val Thr Ala Thr			
405	410	415	
ccg ctg agc agc tcc tct gtg ctg gtg gcc tgg gag cgg cct gag ttg			1296
Pro Leu Ser Ser Ser Val Leu Val Ala Trp Glu Arg Pro Glu Leu			
420	425	430	
cac agc gag caa atc att ggc ttc tct ctt cac tac caa aag gca agg			1344
His Ser Glu Gln Ile Ile Gly Phe Ser Leu His Tyr Gln Lys Ala Arg			
435	440	445	
gga gtg gac aat gtg gag tac cag ttt gca gta aac aat gac acc aca			1392
Gly Val Asp Asn Val Glu Tyr Gln Phe Ala Val Asn Asn Asp Thr Thr			
450	455	460	
gag ctg cag gtt cgg gac ctg gaa ccc aac acg gat tat gag ttc tac			1440
Glu Leu Gln Val Arg Asp Leu Glu Pro Asn Thr Asp Tyr Glu Phe Tyr			
465	470	475	480
gtg gtg gcc tac tcc cag ctg ggg gcc agc cga acc tcc agc cca gcc			1488
Val Val Ala Tyr Ser Gln Leu Gly Ala Ser Arg Thr Ser Ser Pro Ala			
485	490	495	
ctg gtg cat aca ctg gac gat gtc ccc agc gca gca ccc cag ctt acc			1536
Leu Val His Thr Leu Asp Asp Val Pro Ser Ala Ala Pro Gln Leu Thr			

500

505

510

ttg tcc agc ccc aac ccc tcg gac atc agg gtg gca tgg ctg ccc ctg	515	520	525	1584
Leu Ser Ser Pro Asn Pro Ser Asp Ile Arg Val Ala Trp Leu Pro Leu				
ccc tcc agc ctg agc aat gga cag gtg ctg aag tac aag ata gag tac	530	535	540	1632
Pro Ser Ser Leu Ser Asn Gly Gln Val Leu Lys Tyr Lys Ile Glu Tyr				
ggt ttg ggg aag gaa gat cag gtt ttc tcc acc gag gtg cct gga aat	545	550	555	1680
Gly Leu Gly Lys Glu Asp Gln Val Phe Ser Thr Glu Val Pro Gly Asn				
gag aca caa ctt acg tta aac tca ctt cag cca aac aaa gtg tac cga	565	570	575	1728
Glu Thr Gln Leu Thr Leu Asn Ser Leu Gln Pro Asn Lys Val Tyr Arg				
gtc cgg att tca gct ggc act ggc gct ggc tat gga gtc cct tct cag	580	585	590	1776
Val Arg Ile Ser Ala Gly Thr Gly Ala Gly Tyr Gly Val Pro Ser Gln				
tgg atg cag cac agg aca cct ggt gtg cac aac cag agc cat gtt ccc	595	600	605	1824
Trp Met Gln His Arg Thr Pro Gly Val His Asn Gln Ser His Val Pro				
ttt gcc cct gca gaa ttg aag gtg agg gca aag atg gag tcc ctg gtg	610	615	620	1872
Phe Ala Pro Ala Glu Leu Lys Val Arg Ala Lys Met Glu Ser Leu Val				
gtg tca tgg cag ccg ccc cct cac ccc acc cag atc tct gga tac aaa	625	630	635	1920
Val Ser Trp Gln Pro Pro His Pro Thr Gln Ile Ser Gly Tyr Lys				
ctc tac tgg gga gag gtg gga aca gag gag gac gat ggt gac cgc	645	650	655	1968
Leu Tyr Trp Gly Glu Val Gly Thr Glu Glu Ala Asp Gly Asp Arg				
ccc cca ggg ggt cgt gga gat caa gct tgg gac gtc ggg ccc gtg cgg	660	665	670	2016
Pro Pro Gly Gly Arg Gly Asp Gln Ala Trp Asp Val Gly Pro Val Arg				
ctg aag aag aaa gtg aag cag tat gaa ctg acc cag tta gtc cct ggc	675	680	685	2064
Leu Lys Lys Val Lys Gln Tyr Glu Leu Thr Gln Leu Val Pro Gly				
agg ccg tac gag gtg aag ctc gta gct ttc aac aaa cac gag gac ggc	690	695	700	2112
Arg Pro Tyr Glu Val Lys Leu Val Ala Phe Asn Lys His Glu Asp Gly				
tac gct gct gtg tgg aag ggc aag acg gag aag gcg ccc acg cca gac	705	710	715	2160
Tyr Ala Ala Val Trp Lys Gly Lys Thr Glu Lys Ala Pro Thr Pro Asp				

ctg cct atc cag agg ggg cca ccg ctg cct cct gcc cat gtc cac gca Leu Pro Ile Gln Arg Gly Pro Pro Leu Pro Pro Ala His Val His Ala 725 730 735	2208
gag tca aac agc tcc act tcc att tgg ctt cgg tgg aag aag cca gac Glu Ser Asn Ser Ser Thr Ser Ile Trp Leu Arg Trp Lys Lys Pro Asp 740 745 750	2256
ttt acc act gtc aag att gtc aac tac act gta cgc ttc ggc ccc tgg Phe Thr Thr Val Lys Ile Val Asn Tyr Thr Val Arg Phe Gly Pro Trp 755 760 765	2304
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gac att ctc att ggc ggc ctg aaa cca ttt acc aag tac gag ttt gcg Asp Ile Leu Ile Gly Gly Leu Lys Pro Phe Thr Lys Tyr Glu Phe Ala 785 790 795 800	2400
gta cag tcc cac gga gtg gat atg gat ggg ccc ttt ggc tcc gtc gta Val Gln Ser His Gly Val Asp Met Asp Gly Pro Phe Gly Ser Val Val 805 810 815	2448
gaa cgc tcc acc ctg cct gac cgg cct tca aca cct cct tct gac ctg Glu Arg Ser Thr Leu Pro Asp Arg Pro Ser Thr Pro Pro Ser Asp Leu 820 825 830	2496
cgc ctg agc ccc ctg aca cca tcc acc gtt cgg tta cac tgg tgt ccc Arg Leu Ser Pro Leu Thr Pro Ser Thr Val Arg Leu His Trp Cys Pro 835 840 845	2544
ccc acg gag ccc aat ggt gag att gtg gag tat cta att ctc tac agc Pro Thr Glu Pro Asn Gly Glu Ile Val Glu Tyr Leu Ile Leu Tyr Ser 850 855 860	2592
aac aac cac acc cag ccc gaa cac cag tgg aca ctg ctc acc aca gag Asn Asn His Thr Gln Pro Glu His Gln Trp Thr Leu Leu Thr Thr Glu 865 870 875 880	2640
gga aac atc ttc agt gca gag gtc cat ggc cta gag agt gac act cgg Gly Asn Ile Phe Ser Ala Glu Val His Gly Leu Glu Ser Asp Thr Arg 885 890 895	2688
tat ttc ttc aag atg gga gcc cgc aca gag gtg ggg cct ggg ccc ttt Tyr Phe Phe Lys Met Gly Ala Arg Thr Glu Val Gly Pro Gly Pro Phe 900 905 910	2736
tcc cgc ttg cag gat gtg att act ctg caa gag aca ttc tca gac tcc Ser Arg Leu Gln Asp Val Ile Thr Leu Gln Glu Thr Phe Ser Asp Ser 915 920 925	2784

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Leu Asp Val His  
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2796

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35 40 45  
Trp Ser Lys Asp Gly Asp Thr Val Leu Glu His Glu Asn Leu His Leu  
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Leu Pro Asn Gly Ser Leu Trp Leu Ser Ser Pro Leu Glu Gln Glu Asp  
65 70 75 80  
Ser Asp Asp Glu Glu Ala Leu Arg Ile Trp Lys Val Thr Glu Gly Ser  
85 90 95  
Tyr Ser Cys Leu Ala His Ser Pro Leu Gly Val Val Ala Ser Gln Val  
100 105 110  
Ala Val Val Lys Leu Ala Thr Leu Glu Asp Phe Ser Leu His Pro Glu  
115 120 125  
Ser Gln Ile Val Glu Glu Asn Gly Thr Ala Arg Phe Glu Cys His Thr  
130 135 140  
Lys Gly Leu Pro Ala Pro Ile Ile Thr Trp Glu Lys Asp Gln Val Thr  
145 150 155 160  
Val Pro Glu Glu Pro Arg Leu Ile Thr Leu Pro Lys Trp Leu Leu Gln  
165 170 175  
Ile Leu Asp Val Gln Asp Ser Asp Ala Gly Ser Tyr Arg Cys Val Ala  
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Thr Asn Ser Ala Arg Gln Arg Phe Ser Gln Glu Ala Ser Leu Thr Val  
195 200 205  
Ala Leu Arg Gly Ser Leu Glu Ala Thr Arg Gly Gln Asp Val Val Ile  
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Val Ala Ala Pro Glu Asn Thr Thr Val Val Ser Gly Gln Asn Val Val  
225 230 235 240  
Met Glu Cys Val Ala Ser Ala Asp Pro Thr Pro Phe Val Ser Trp Val  
245 250 255  
Arg Gln Asp Gly Lys Pro Ile Ser Thr Asp Val Ile Val Leu Gly Arg  
260 265 270  
Thr Asn Leu Leu Ile Ala Ser Ala Gln Pro Arg His Ser Gly Val Tyr  
275 280 285  
Val Cys Arg Ala Asn Lys Pro Leu Thr Arg Asp Phe Ala Thr Ala Ala  
290 295 300  
Ala Glu Leu Arg Val Leu Ala Ala Pro Ala Ile Ser Gln Ala Pro Glu  
305 310 315 320  
Ala Leu Ser Arg Thr Arg Ala Ser Thr Ala Arg Phe Val Cys Arg Ala  
325 330 335

Ser Gly Glu Pro Arg Pro Ala Leu His Trp Leu His Asp Gly Ile Pro  
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Leu Arg Pro Asn Gly Arg Val Lys Val Gln Gly Gly Gly Ser Leu  
355 360 365  
Val Ile Thr Gln Ile Gly Leu Gln Asp Ala Gly Tyr Tyr Gln Cys Val  
370 375 380  
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405 410 415  
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465 470 475 480  
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485 490 495  
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565 570 575  
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580 585 590  
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Phe Ala Pro Ala Glu Leu Lys Val Arg Ala Lys Met Glu Ser Leu Val  
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625 630 635 640  
Leu Tyr Trp Gly Glu Val Gly Thr Glu Glu Ala Asp Gly Asp Arg  
645 650 655  
Pro Pro Gly Gly Arg Gly Asp Gln Ala Trp Asp Val Gly Pro Val Arg  
660 665 670  
Leu Lys Lys Lys Val Lys Gln Tyr Glu Leu Thr Gln Leu Val Pro Gly  
675 680 685  
Arg Pro Tyr Glu Val Lys Leu Val Ala Phe Asn Lys His Glu Asp Gly  
690 695 700  
Tyr Ala Ala Val Trp Lys Gly Lys Thr Glu Lys Ala Pro Thr Pro Asp  
705 710 715 720  
Leu Pro Ile Gln Arg Gly Pro Pro Leu Pro Pro Ala His Val His Ala  
725 730 735  
Glu Ser Asn Ser Ser Thr Ser Ile Trp Leu Arg Trp Lys Lys Pro Asp  
740 745 750  
Phe Thr Thr Val Lys Ile Val Asn Tyr Thr Val Arg Phe Gly Pro Trp

755	760	765
Gly Leu Arg Asn Ala Ser	Leu Val Thr Tyr Tyr	Thr Ser Ser Gly Glu
770	775	780
Asp Ile Leu Ile Gly Gly	Leu Lys Pro Phe	Thr Lys Tyr Glu Phe Ala
785	790	795
Val Gln Ser His Gly Val	Asp Met Asp Gly	Pro Phe Gly Ser Val Val
805	810	815
Glu Arg Ser Thr Leu Pro	Asp Arg Pro Ser	Thr Pro Pro Ser Asp Leu
820	825	830
Arg Leu Ser Pro Leu Thr	Pro Ser Thr Val Arg	Leu His Trp Cys Pro
835	840	845
Pro Thr Glu Pro Asn Gly	Glu Ile Val Glu	Tyr Leu Ile Leu Tyr Ser
850	855	860
Asn Asn His Thr Gln Pro	Glu His Gln Trp	Thr Leu Leu Thr Thr Glu
865	870	875
Gly Asn Ile Phe Ser Ala	Glu Val His Gly	Leu Glu Ser Asp Thr Arg
885	890	895
Tyr Phe Phe Lys Met Gly	Ala Arg Thr Glu Val	Gly Pro Gly Pro Phe
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Thr Pro Gly Asn Pro Ala Leu Tyr Thr Arg Ala Arg Leu Gly Pro Pro  
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Ser Val Pro Ala Ala His Glu Leu Glu Ser Leu Val His Pro Arg Pro  
35 40 45

cag gat tgg tcc cca cca ccc tca gat gtg gaa gac aag gct gaa gta 192  
Gln Asp Trp Ser Pro Pro Ser Asp Val Glu Asp Lys Ala Glu Val  
50 55 60

cac agc ctt atg ggt ggc agt gtt tca gat tgc cgg ggc cac tcc aag 240  
His Ser Leu Met Gly Gly Ser Val Ser Asp Cys Arg Gly His Ser Lys

65

70

75

80

aga aag atc tcc tgg gct cag gca ggg gga cca aac tgg gca ggc tcc 288  
Arg Lys Ile Ser Trp Ala Gln Ala Gly Gly Pro Asn Trp Ala Gly Ser  
85 90 95

tgg gca ggc tgt gag ctg ccc cag ggt agt ggt cca agg ccg gct ctg 336  
Trp Ala Gly Cys Glu Leu Pro Gln Gly Ser Gly Pro Arg Pro Ala Leu  
100 105 110

acc cgt gct ctg ctg cct cca gcg gga acc ggg cag aca ctg ctg ctg 384  
Thr Arg Ala Leu Leu Pro Pro Ala Gly Thr Gly Gln Thr Leu Leu Leu  
115 120 125

caa gcc ctg gtg tat gac ggc ata aag agc aac ggg aga aag aag ccg 432  
Gln Ala Leu Val Tyr Asp Gly Ile Lys Ser Asn Gly Arg Lys Lys Pro  
130 135 140

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Ser Pro Ala Cys Arg Asn Gln Val Glu Ala Glu Val Ile Val His Ser  
145 150 155 160

gac ttc ggt gca tcc aaa gga tgt cct gac ctc cac ctc caa gac ctg 528  
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165 170 175

gag cca gag gaa cca ctg act gca gag act ctg cct tcc acg tct gga 576  
Glu Pro Glu Glu Pro Leu Thr Ala Glu Thr Leu Pro Ser Thr Ser Gly  
180 185 190

gct gtg gat ctg tct caa gga gca gac tgg ctg ggc agg gag ctg gga 624  
Ala Val Asp Leu Ser Gln Gly Ala Asp Trp Leu Gly Arg Glu Leu Gly  
195 200 205

ggg tgc caa cca aca acc agt ggg cca gag agg ctc acc tgc ttg cca 672  
Gly Cys Gln Pro Thr Thr Ser Gly Pro Glu Arg Leu Thr Cys Leu Pro  
210 215 220

gaa gca gcc agt gcc tcc tgc tcc tca gac ctc cag ccc agc act 720  
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225 230 235 240

gct ata gag gag gcc cct ggg aaa agc tgc cag ccc aaa gcc ctg tgt 768  
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245 250 255

cct cta aca gtc agc cca agc ctt ccc agg gcc cct gtc tcc tct gct 816  
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Gln Asp Trp Ser Pro Pro Pro Ser Asp Val Glu Asp Lys Ala Glu Val  
50 55 60  
His Ser Leu Met Gly Gly Ser Val Ser Asp Cys Arg Gly His Ser Lys  
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Arg Lys Ile Ser Trp Ala Gln Ala Gly Gly Pro Asn Trp Ala Gly Ser  
85 90 95  
Trp Ala Gly Cys Glu Leu Pro Gln Gly Ser Gly Pro Arg Pro Ala Leu  
100 105 110  
Thr Arg Ala Leu Leu Pro Pro Ala Gly Thr Gly Gln Thr Leu Leu Leu  
115 120 125  
Gln Ala Leu Val Tyr Asp Gly Ile Lys Ser Asn Gly Arg Lys Lys Pro  
130 135 140  
Ser Pro Ala Cys Arg Asn Gln Val Glu Ala Glu Val Ile Val His Ser  
145 150 155 160  
Asp Phe Gly Ala Ser Lys Gly Cys Pro Asp Leu His Leu Gln Asp Leu  
165 170 175  
Glu Pro Glu Glu Pro Leu Thr Ala Glu Thr Leu Pro Ser Thr Ser Gly  
180 185 190  
Ala Val Asp Leu Ser Gln Gly Ala Asp Trp Leu Gly Arg Glu Leu Gly  
195 200 205  
Gly Cys Gln Pro Thr Thr Ser Gly Pro Glu Arg Leu Thr Cys Leu Pro  
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Glu Ala Ala Ser Ala Ser Cys Ser Cys Ser Asp Leu Gln Pro Ser Thr  
225 230 235 240  
Ala Ile Glu Glu Ala Pro Gly Lys Ser Cys Gln Pro Lys Ala Leu Cys  
245 250 255  
Pro Leu Thr Val Ser Pro Ser Leu Pro Arg Ala Pro Val Ser Ser Ala  
260 265 270  
Gln Val Pro  
275

<210> 7  
<211> 243  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS

<222> (1) ... (243)

<400> 7  
cct gag cag gct gtg gtg ctg gac tgc act ttg ggg gct aca gct gct 48  
Pro Glu Gln Ala Val Val Leu Asp Cys Thr Leu Gly Ala Thr Ala Ala  
1 5 10 15  
ggg cct ccg acc agg gtg aca tgg agc aag gat gga gac act gta cta 96  
Gly Pro Pro Thr Arg Val Thr Trp Ser Lys Asp Gly Asp Thr Val Leu  
20 25 30  
gag cat gag aac ctg cac ctg cta ccc aat ggc tcc ctg tgg ctg tcc 144  
Glu His Glu Asn Leu His Leu Leu Pro Asn Gly Ser Leu Trp Leu Ser  
35 40 45  
tca ccc cta gag caa gaa gac agc gat gat gag gaa gct ctt agg atc 192  
Ser Pro Leu Glu Gln Glu Asp Ser Asp Asp Glu Glu Ala Leu Arg Ile  
50 55 60  
tgg aag gtc act gag ggc agc tat tcc tgt ctg gcc cac agc ccg cta 240  
Trp Lys Val Thr Glu Gly Ser Tyr Ser Cys Leu Ala His Ser Pro Leu  
65 70 75 80  
gga 243  
Gly

<210> 8  
<211> 81  
<212> PRT  
<213> Mus musculus

<400> 8  
Pro Glu Gln Ala Val Val Leu Asp Cys Thr Leu Gly Ala Thr Ala Ala  
1 5 10 15  
Gly Pro Pro Thr Arg Val Thr Trp Ser Lys Asp Gly Asp Thr Val Leu  
20 25 30  
Glu His Glu Asn Leu His Leu Leu Pro Asn Gly Ser Leu Trp Leu Ser  
35 40 45  
Ser Pro Leu Glu Gln Glu Asp Ser Asp Asp Glu Glu Ala Leu Arg Ile  
50 55 60  
Trp Lys Val Thr Glu Gly Ser Tyr Ser Cys Leu Ala His Ser Pro Leu  
65 70 75 80  
Gly

<210> 9  
<211> 192  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS  
<222> (1)...(192)

<400> 9  
gag aac ggg aca gca cgc ttt gaa tgc cac acc aag ggc ctt cca gcc 48  
Glu Asn Gly Thr Ala Arg Phe Glu Cys His Thr Lys Gly Leu Pro Ala  
1 5 10 15

ccc atc att act tgg gaa aag gac cag gtg acc gtg cct gag gag ccc 96  
Pro Ile Ile Thr Trp Glu Lys Asp Gln Val Thr Val Pro Glu Glu Pro  
20 25 30

cgg ctc atc act ctt ccc aag tgg ctc ctc cag atc cta gat gtc cag 144  
Arg Leu Ile Thr Leu Pro Lys Trp Leu Leu Gln Ile Leu Asp Val Gln  
35 40 45

gac agt gat gca ggc tcc tac cgc tgc gtg gcc acc aat tca gcc cgc 192  
Asp Ser Asp Ala Gly Ser Tyr Arg Cys Val Ala Thr Asn Ser Ala Arg  
50 55 60

<210> 10  
<211> 64  
<212> PRT  
<213> Mus musculus

<400> 10  
Glu Asn Gly Thr Ala Arg Phe Glu Cys His Thr Lys Gly Leu Pro Ala  
1 5 10 15  
Pro Ile Ile Thr Trp Glu Lys Asp Gln Val Thr Val Pro Glu Glu Pro  
20 25 30  
Arg Leu Ile Thr Leu Pro Lys Trp Leu Leu Gln Ile Leu Asp Val Gln  
35 40 45  
Asp Ser Asp Ala Gly Ser Tyr Arg Cys Val Ala Thr Asn Ser Ala Arg  
50 55 60

<210> 11  
<211> 189  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS  
<222> (1)...(189)

<400> 11  
tct gga cag aat gta gtg atg gag tgc gtg gcc tct gct gac ccc acc 48  
Ser Gly Gln Asn Val Val Met Glu Cys Val Ala Ser Ala Asp Pro Thr  
1 5 10 15

cct ttt gtg tcc tgg gtc cga cag gat gga aag cct atc tcc acg gat 96  
Pro Phe Val Ser Trp Val Arg Gln Asp Gly Lys Pro Ile Ser Thr Asp  
20 25 30

gtc atc gtt ctg ggc acc aat cta ctc atc gcc agc gcg cag cct 144  
Val Ile Val Leu Gly Arg Thr Asn Leu Leu Ile Ala Ser Ala Gln Pro  
35 40 45

cgg cac tct gga gtc tat gtc tgc cga gcc aac aag ccc ctc acg 189  
Arg His Ser Gly Val Tyr Val Cys Arg Ala Asn Lys Pro Leu Thr  
50 55 60

<210> 12

<211> 63

<212> PRT

<213> Mus musculus

<400> 12  
Ser Gly Gln Asn Val Val Met Glu Cys Val Ala Ser Ala Asp Pro Thr  
1 5 10 15  
Pro Phe Val Ser Trp Val Arg Gln Asp Gly Lys Pro Ile Ser Thr Asp  
20 25 30  
Val Ile Val Leu Gly Arg Thr Asn Leu Leu Ile Ala Ser Ala Gln Pro  
35 40 45  
Arg His Ser Gly Val Tyr Val Cys Arg Ala Asn Lys Pro Leu Thr  
50 55 60

<210> 13

<211> 195

<212> DNA

<213> Mus musculus

<220>  
<221> CDS  
<222> (1) ... (195)

<400> 13  
cgg gcc agc acc gcg cgc ttc gtg tgc cgg gcg tcc ggg gag cca cgg 48  
Arg Ala Ser Thr Ala Arg Phe Val Cys Arg Ala Ser Gly Glu Pro Arg  
1 5 10 15

ccc gcg ctg cac tgg ctg cac gac ggg atc ccg ttg cga ccc aat ggg 96  
Pro Ala Leu His Trp Leu His Asp Gly Ile Pro Leu Arg Pro Asn Gly  
20 25 30

cgc gtc aag gtg cag ggc ggt ggc ggc agc ttg gtc atc act cag atc 144  
Arg Val Lys Val Gln Gly Gly Gly Ser Leu Val Ile Thr Gln Ile  
35 40 45

ggc ctg cag gac gct ggc tac tac cag tgc gta gca gaa aac agc gcg 192

Gly Leu Gln Asp Ala Gly Tyr Tyr Gln Cys Val Ala Glu Asn Ser Ala  
50 55 60

gga 195  
Gly  
65

<210> 14  
<211> 65  
<212> PRT  
<213> Mus musculus

<400> 14  
Arg Ala Ser Thr Ala Arg Phe Val Cys Arg Ala Ser Gly Glu Pro Arg  
1 5 10 15  
Pro Ala Leu His Trp Leu His Asp Gly Ile Pro Leu Arg Pro Asn Gly  
20 25 30  
Arg Val Lys Val Gln Gly Gly Ser Leu Val Ile Thr Gln Ile  
35 40 45  
Gly Leu Gln Asp Ala Gly Tyr Tyr Gln Cys Val Ala Glu Asn Ser Ala  
50 55 60  
Gly  
65

<210> 15  
<211> 249  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS  
<222> (1) ... (249)

<400> 15  
agc gcc ccg act cgg gtc aca gcc acg ccg ctg agc agc tcc tct gtg 48  
Ser Ala Pro Thr Arg Val Thr Ala Thr Pro Leu Ser Ser Ser Val  
1 5 10 15

ctg gtg gcc tgg gag cgg cct gag ttg cac agc gag caa atc att ggc 96  
Leu Val Ala Trp Glu Arg Pro Glu Leu His Ser Glu Gln Ile Ile Gly  
20 25 30

ttc tct ctt cac tac caa aag gca agg gga gtg gac aat gtg gag tac 144  
Phe Ser Leu His Tyr Gln Lys Ala Arg Gly Val Asp Asn Val Glu Tyr  
35 40 45

cag ttt gca gta aac aat gac acc aca gag ctg cag gtt cgg gac ctg 192  
Gln Phe Ala Val Asn Asn Asp Thr Thr Glu Leu Gln Val Arg Asp Leu  
50 55 60

gaa ccc aac acg gat tat gag ttc tac gtg gtg gcc tac tcc cag ctg 240

Glu Pro Asn Thr Asp Tyr Glu Phe Tyr Val Val Ala Tyr Ser Gln Leu  
65 70 75 80

249  
ggg gcc agc  
Gly Ala Ser

<210> 16  
<211> 83  
<212> PRT  
<213> Mus musculus

<400> 16  
Ser Ala Pro Thr Arg Val Thr Ala Thr Pro Leu Ser Ser Ser Val  
1 5 10 15  
Leu Val Ala Trp Glu Arg Pro Glu Leu His Ser Glu Gln Ile Ile Gly  
20 25 30  
Phe Ser Leu His Tyr Gln Lys Ala Arg Gly Val Asp Asn Val Glu Tyr  
35 40 45  
Gln Phe Ala Val Asn Asn Asp Thr Thr Glu Leu Gln Val Arg Asp Leu  
50 55 60  
Glu Pro Asn Thr Asp Tyr Glu Phe Tyr Val Val Ala Tyr Ser Gln Leu  
65 70 75 80  
Gly Ala Ser

<210> 17  
<211> 249  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS  
<222> (1) ... (249)

<400> 17  
agc gca gca ccc cag ctt acc ttg tcc agc ccc aac ccc tcg gac atc 48  
Ser Ala Ala Pro Gln Leu Thr Leu Ser Ser Pro Asn Pro Ser Asp Ile  
1 5 10 15

agg gtg gca tgg ctg ccc ctg ccc tcc agc ctg agc aat gga cag gtg 96  
Arg Val Ala Trp Leu Pro Leu Pro Ser Ser Leu Ser Asn Gly Gln Val  
20 25 30

ctg aag tac aag ata gag tac ggt ttg ggg aag gaa gat cag gtt ttc 144  
Leu Lys Tyr Lys Ile Glu Tyr Gly Leu Gly Lys Glu Asp Gln Val Phe  
35 40 45

tcc acc gag gtg cct gga aat gag aca caa ctt acg tta aac tca ctt 192  
Ser Thr Glu Val Pro Gly Asn Glu Thr Gln Leu Thr Leu Asn Ser Leu  
50 55 60

cag cca aac aaa gtg tac cga gtc cg att tca gct ggc act ggc gct 240  
Gln Pro Asn Lys Val Tyr Arg Val Arg Ile Ser Ala Gly Thr Gly Ala  
65 70 75 80

ggc tat gga 249  
Gly Tyr Gly

<210> 18  
<211> 83  
<212> PRT  
<213> Mus musculus

<400> 18  
Ser Ala Ala Pro Gln Leu Thr Leu Ser Ser Pro Asn Pro Ser Asp Ile  
1 5 10 15  
Arg Val Ala Trp Leu Pro Leu Pro Ser Ser Leu Ser Asn Gly Gln Val  
20 25 30  
Leu Lys Tyr Lys Ile Glu Tyr Gly Leu Gly Lys Glu Asp Gln Val Phe  
35 40 45  
Ser Thr Glu Val Pro Gly Asn Glu Thr Gln Leu Thr Leu Asn Ser Leu  
50 55 60  
Gln Pro Asn Lys Val Tyr Arg Val Arg Ile Ser Ala Gly Thr Gly Ala  
65 70 75 80  
Gly Tyr Gly

<210> 19  
<211> 288  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS  
<222> (1) ... (288)

<400> 19 48  
ttt gcc cct gca gaa ttg aag gtg agg gca aag atg gag tcc ctg gtg  
Phe Ala Pro Ala Glu Leu Lys Val Arg Ala Lys Met Glu Ser Leu Val  
1 5 10 15

gtg tca tgg cag ccg ccc cct cac ccc acc cag atc tct gga tac aaa 96  
Val Ser Trp Gln Pro Pro Pro His Pro Thr Gln Ile Ser Gly Tyr Lys  
20 25 30

ctc tac tgg gga gag gtg gga aca gag gag gca gat ggt gac cgc 144  
Leu Tyr Trp Gly Glu Val Gly Thr Glu Glu Ala Asp Gly Asp Arg  
35 40 45

ccc cca ggg ggt cgt gga gat caa gct tgg gac gtc ggg ccc gtg cgg 192

Pro Pro Gly Gly Arg Gly Asp Gln Ala Trp Asp Val Gly Pro Val Arg  
50 55 60

ctg aag aag aaa gtg aag cag tat gaa ctg acc cag tta gtc cct ggc 240  
Leu Lys Lys Lys Val Lys Gln Tyr Glu Leu Thr Gln Leu Val Pro Gly  
65 70 75 80

agg ccg tac gag gtg aag ctc gta gct ttc aac aaa cac gag gac ggc 288  
Arg Pro Tyr Glu Val Lys Leu Val Ala Phe Asn Lys His Glu Asp Gly  
85 90 95

<210> 20

<211> 96

<212> PRT

<213> Mus musculus

<400> 20

Phe Ala Pro Ala Glu Leu Lys Val Arg Ala Lys Met Glu Ser Leu Val  
1 5 10 15

Val Ser Trp Gln Pro Pro Pro His Pro Thr Gln Ile Ser Gly Tyr Lys  
20 25 30

Leu Tyr Trp Gly Glu Val Gly Thr Glu Glu Ala Asp Gly Asp Arg  
35 40 45

Pro Pro Gly Gly Arg Gly Asp Gln Ala Trp Asp Val Gly Pro Val Arg  
50 55 60

Leu Lys Lys Lys Val Lys Gln Tyr Glu Leu Thr Gln Leu Val Pro Gly  
65 70 75 80

Arg Pro Tyr Glu Val Lys Leu Val Ala Phe Asn Lys His Glu Asp Gly  
85 90 95

<210> 21

<211> 246

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (1) . . . (246)

<400> 21

ctg cct cct gcc cat gtc cac gca gag tca aac agc tcc act tcc att 48  
Leu Pro Pro Ala His Val His Ala Glu Ser Asn Ser Ser Thr Ser Ile  
1 5 10 15

tgg ctt cgg tgg aag aag cca gac ttt acc act gtc aag att gtc aac 96  
Trp Leu Arg Trp Lys Lys Pro Asp Phe Thr Thr Val Lys Ile Val Asn  
20 25 30

tac act gta cgc ttc ggc ccc tgg ggg ctc agg aat gct tcc ctg gtc 144  
Tyr Thr Val Arg Phe Gly Pro Trp Gly Leu Arg Asn Ala Ser Leu Val

35

40

45

acc tac tat acc agc tct gga gaa gac att ctc att ggc ggc ctg aaa 192  
Thr Tyr Tyr Thr Ser Ser Gly Glu Asp Ile Leu Ile Gly Gly Leu Lys  
50 55 60

cca ttt acc aag tac gag ttt gcg gta cag tcc cac gga gtg gat atg 240  
Pro Phe Thr Lys Tyr Glu Phe Ala Val Gln Ser His Gly Val Asp Met  
65 70 75 80

gat ggg 246  
Asp Gly

<210> 22  
<211> 82  
<212> PRT  
<213> Mus musculus

<400> 22  
Leu Pro Pro Ala His Val His Ala Glu Ser Asn Ser Ser Thr Ser Ile  
1 5 10 15  
Trp Leu Arg Trp Lys Lys Pro Asp Phe Thr Thr Val Lys Ile Val Asn  
20 25 30  
Tyr Thr Val Arg Phe Gly Pro Trp Gly Leu Arg Asn Ala Ser Leu Val  
35 40 45  
Thr Tyr Tyr Thr Ser Ser Gly Glu Asp Ile Leu Ile Gly Gly Leu Lys  
50 55 60  
Pro Phe Thr Lys Tyr Glu Phe Ala Val Gln Ser His Gly Val Asp Met  
65 70 75 80  
Asp Gly

<210> 23  
<211> 252  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS  
<222> (1) ... (252)

<400> 23 48  
aca cct cct tct gac ctg cgc ctg agc ccc ctg aca cca tcc acc gtt  
Thr Pro Pro Ser Asp Leu Arg Leu Ser Pro Leu Thr Pro Ser Thr Val  
1 5 10 15

cgg tta cac tgg tgt ccc ccc acg gag ccc aat ggt gag att gtg gag 96  
Arg Leu His Trp Cys Pro Pro Thr Glu Pro Asn Gly Glu Ile Val Glu  
20 25 30

tat cta att ctc tac agc aac aac cac acc cag ccc gaa cac cag tgg	144		
Tyr Leu Ile Leu Tyr Ser Asn Asn His Thr Gln Pro Glu His Gln Trp			
35	40	45	
aca ctg ctc acc aca gag gga aac atc ttc agt gca gag gtc cat ggc	192		
Thr Leu Leu Thr Thr Glu Gly Asn Ile Phe Ser Ala Glu Val His Gly			
50	55	60	
cta gag agt gac act cgg tat ttc ttc aag atg gga gcc cgc aca gag	240		
Leu Glu Ser Asp Thr Arg Tyr Phe Phe Lys Met Gly Ala Arg Thr Glu			
65	70	75	80
gtg ggg cct ggg	252		
Val Gly Pro Gly			

<210> 24  
<211> 84  
<212> PRT  
<213> *Mus musculus*

<400> 24  
Thr Pro Pro Ser Asp Leu Arg Leu Ser Pro Leu Thr Pro Ser Thr Val  
1 5 10 15  
Arg Leu His Trp Cys Pro Pro Thr Glu Pro Asn Gly Glu Ile Val Glu  
20 25 30  
Tyr Leu Ile Leu Tyr Ser Asn Asn His Thr Gln Pro Glu His Gln Trp  
35 40 45  
Thr Leu Leu Thr Thr Glu Gly Asn Ile Phe Ser Ala Glu Val His Gly  
50 55 60  
Leu Glu Ser Asp Thr Arg Tyr Phe Phe Lys Met Gly Ala Arg Thr Glu  
65 70 75 80  
Val Gly Pro Gly

<210> 25  
<211> 26  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> oligonucleotide primer

<400> 25  
aagcaggtga gcctctctgg cccact 26

<210> 26  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> oligonucleotide primer

<400> 26  
cttgagacag atccacagct ccagac

26

<210> 27  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> oligonucleotide primer

<400> 27  
atccgggaag ggcttccctg tgggagctc

30

<210> 28  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> oligonucleotide primer

<400> 28  
gcgcgtggga catcgtccag tgtatg

26

<210> 29  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> oligonucleotide primer

<400> 29  
gttccaggta ccgaacctgc agctctgt

28

<210> 30  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> oligonucleotide primer

<400> 30  
ccactccccct tgcctttgg tagtgaa

27

<210> 31  
<211> 21  
<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide primer

<400> 31

gtgctgacct tctgcctgct g

21

<210> 32

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide primer

<400> 32

ctctgtctgc tacactggtc aa

22

<210> 33

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide primer

<400> 33

tggacgccaa ggagttgg

18

<210> 34

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide primer

<400> 34

caaatcccac agaacagga

19

<210> 35

<211> 17

<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide primer

<400> 35

acgggcatca tcgtggg

17

<210> 36

<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> oligonucleotide primer

<400> 36  
gaggaggaca atccgggaag ggctt

25

<210> 37  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> oligonucleotide primer

<400> 37  
tcaaggcgtt gacacttgac tgtg

24

<210> 38  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> oligonucleotide primer

<400> 38  
taatctcaca gtgatgagag gaga

24

<210> 39  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> oligonucleotide primer

<400> 39  
ctgtgtctca atcttgaaca aacaca

26

<210> 40  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> oligonucleotide primer

<400> 40  
ggaagagaga cagtaaacat ttctgt

25

<210> 41  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> oligonucleotide primer

<400> 41  
ctcccttcct tcctgatcgt ttcc

24

<210> 42  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> oligonucleotide primer

<400> 42  
cggctctcaa gcactgcaga ttttg

25

<210> 43  
<211> 500  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS  
<222> (276) . . . (338)

<400> 43  
aggctggtgg cgcgcggcg cgtgtccct gtggtcagg gtggccacac tggcgggcg 60  
cccccgctg ggccgctagc ccaagatggc gatggaggg cggcgagct ggccgccc 120  
ccggccccc cgcggcccc cgctggccc cggcccccga ggcccgcc 180  
cgccgcgcct cccggagcca ctgacgcccc ggcgcgcctc cccggcgcc 240  
cccgacgcg gggcagcgg cccgagcccg gccct atg gcg cgg gcg gac acg 293

Met Ala Arg Ala Asp Thr

1

5

ggc cgc ggg ctc ctg gtg ctg acc ttc tgc ctg tcc gcg cgc 338  
Gly Arg Gly Leu' Leu Val Leu Thr Phe Cys Leu Leu Ser Ala Arg  
10 15 20

ggtaaggccc cgggtggccg cagtcgcag tggcgccc cggcgccgc gatgcttgcg 398  
cgccggggcc tggggact tggcccccagg ggggtgtgt cttgtgtg cacagcctgg 458  
caccgtgcgt gtcccccgtc gcgtggccct tgtcatgtg ag 500

<210> 44  
<211> 21  
<212> PRT  
<213> Mus musculus

<400> 44

Met Ala Arg Ala Asp Thr Gly Arg Gly Leu Leu Val Leu Thr Phe Cys  
1 5 10 15  
Leu Leu Ser Ala Arg  
20

<210> 45

<211> 3756

<212> DNA

<213> Mus musculus

<400> 45

atggcgccggg cggacacggg ccgcgggctc ctggtgctga cttctgcct gctgtcccg 60  
cgcggggagc tgccattgcc ccaggagaca actgtcaagc tgagctgtga tgagggaccc 120  
ctgcaagtga tcctggggcc tgagcaggct gtgtgtgtgg actgcacttt gggggctaca 180  
gctgctggc ctccgaccag ggtgacatgg agcaaggatg gagacactgt actagagcat 240  
gagaacctgc acctgctacc caatggctcc ctgtggctgt cctcaccctt agagcaagaa 300  
gacagcgatg atgaggaagc tcttaggatc tggaaaggta ctgagggcag ctattcctgt 360  
ctggcccaaca gcccgcattt agtggtgcc agccaggttt ctgtggtcaa gcttgcaca 420  
ctcgaagact tctctctgca ccccgatgc cagattgtgg aggagaacgg gacagcacgc 480  
tttgaatgcc acaccaaggg cttccagcc cccatcatta ctggggaaaa ggaccagggt 540  
accgtgcctg aggagccccg gtcataact cttcccaagt ggctcctcca gatccatagat 600  
gtccaggaca gtgatgcagg ctccatccgc tgcgtggcca ccaattcagc cggccaaacga 660  
ttcagccagg aggccctcgct cactgtgcc ctcagagggt cttggaggc taccaggggg 720  
caggatgtgg tcattgtggc agccccagag aacaccacgg tagtgtctgg acagaatgt 780  
gtgatggagt gctgtggcctc tgctgacccc acccctttt tgcctgggt ccgacaggat 840  
ggaaaggcta tctccacgga tgcatacgat ctggccggc ccaatctact catcgccagc 900  
gctcggccctc ggcactctgg agtctatgtc tgccgagcca acaaggccct cacgcgtgac 960  
ttcgccactg cggctgtga gctccgagtg ctgtgtgccc cagccatctc gcaggcaccc 1020  
gaggcgctct cgcggacgcg ggccagcacc ggcgccttcg tgcgtggc gtcggggag 1080  
ccacggcccg cgctgcactg gctgcacgac gggatcccgt tgcgacccaa tggcgccgtc 1140  
aagggtgcagg gcggtggcgg cagcttggtc atcaactaga tggccctgca ggacgctggc 1200  
tactaccatg gctgtacgaca aaacagcgcg ggaactgcct tgcgtgc gcccctggcg 1260  
gtagtgggtc gcgaggggct gcccagcgcc ccgactcggt tcacagccac gccgctgagc 1320  
agctcctctg tgctgggtgc ctgggagcggt cctgagttgc acagcgagca aatcattggc 1380  
ttctctcttc actacaaaaa ggcaaggggta tggacaatg tggagttacca gtttcagta 1440  
aacaatgaca ccacagagct gcaaggatcg gaccttggaa ccaacacgga ttatgatgc 1500  
tacgtgggtgg cctactccca gctggggggcc agccgaacct ccagccacgc cctgggtgc 1560  
acactggacg atgtccccag cgcagcaccc cagcttaccc tgcgtggc caacccctcg 1620  
gacatcagggt tggcatggct gcccctgccc tccagcctga gcaatggaca ggtgtgtaa 1680  
tacaagatag agtacgggtt ggggaaggaa gatcagggtt tctccaccga ggtgcctgg 1740  
aatgagacac aacttacgtt aaactcaccc cagccaaaca aagtgtaccg agtccggatt 1800  
tcagctggca ctggcgctgg ctatggagtc cttctcagt ggtgcagca caggacaccc 1860  
gtgtgtgcaca accagagcca tggcccttt gcccctgcag aattgaagggt gagggcaaa 1920  
atggagtcctt tgggtgggtgc atggcagccg cccctcacc ccacccagat ctctggatac 1980  
aaactctact ggggagaggt gggaaacagag gaggaggcag atggtgaccg ccccccagg 2040  
ggtcgtggag atcaagctt gacgtcggtt cccgtgcgc tgaagaagaa agtgaagcag 2100  
tatgaactga cccaggatgt ccctggcagg ccgtacgagg tgaagctgt agctttcaac 2160  
aaacacgagg acggctacgc tgctgtgtgg aaggcaaga cggagaaggc gcccacgcca 2220  
gacctgccta tccagagggg gccaccgcgt cctccgtccc atgtccacgc agagtcaaac 2280  
agctccactt ccatttggct tcgggtggaa aagccagact ttaccactgt caagattgtc 2340

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